



PROJECT REPORT
MEAT FRESHNESS CLASSIFICATION USING
CONVOLUTIONAL NEURAL NETWORK ALGORITHM

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ABSTRACT

Humans need nutritional levels like protein in their bodies. The fulfillment of these nutritional levels is because can help support the body's metabolism for activities. The foodstuff that contain protein levels such as meat, are often consumed by the public because they are very easy to get in traditional markets to supermarkets, but the fresh meat which is sold in traditional markets and supermarkets is still mixed with half-fresh or spoiled meat due to lack of understanding in distinguishing freshness in meat. Therefore, before the meat delivered to traditional markets and supermarkets, these meats need to be classified using an algorithm that can be applied to a computer system so that they can provide the quality of meat that is worth to sell.

Convolutional Neural Network is an algorithm that can be applied to computer systems to help determine the condition of meat that is worth to sell. The Convolutional Neural Network architecture that is used in this classification process, uses 4 convolution layers, max pooling layer, flatten layer, and dense layer. The classification process is carried out using five different data variants to review the accuracy of the classification that produced from each data variants.

With using Adam's optimizer (learning-rate: $1e-4$), batch size 64, and epoch 50 on the designed Convolutional Neural Network model, resulting 0.9546 for the precision values, 0.9540 for the recall values, 0.9539 for the F1-Score and 0.9540 for the accuracy from 60% training data, 20% validation data, and 20% testing data, 0.9550 for the precision values, 0.9539 for the recall values, 0.9539 for the F1-Score and 0.9539 for the accuracy from 70% training data, 10% validation data, and 20% testing data, and 0.9700 for the precision values, 0.9694 for the recall values, 0.9695 for the F1-Score and 0.9694 for the accuracy from 80% training data, 10% validation data, and 10% testing data.

Keyword: Convolutional Neural Network, Meat Freshness

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